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MIND IN MEN AND ANIMALS.

To the August number of this Review I contributed a short article entitled "Man and Brute," wherein I endeavored to sketch the lines through which the human mind has probably been evolved from minds of lower types. My argument was that up to a certain point the psychology of man runs parallel with that of animals; emotions, instincts, and reason all corresponding each to each in the two orders of mind so far as they are common to both; it being, therefore, only an unparalleled growth in certain lines in the psychology of man that the evolutionist has to explain. This unparalleled growth, I further argued, might be shown to arise from a gradual development of the sign-making faculty, as this undoubtedly occurs in animals. That is to say, in animals as in ourselves, there is obviously a "logic of feelings," and in them also to a certain extent there is obviously the power of translating this logic of feelings into the "logic of signs." Usually the signs employed are those of tone and gesture; but in the only animals that happen to possess the power of articulation, the talking birds, I have evidence to show that the signs employed for the purpose of communicating desires and ideas of objects, qualities, and actions, may be articulate. In what respect, then, it will be asked, does the mind of a parrot differ from the mind of a man? The bird has instincts, emotions, and a faculty of ratiocination, all the same in kind as those that obtain in ourselves; while in its power of translating the logic of its feelings into a logic of articulate signs, the bird further presents (in a rudimentary stage of development, indeed, but none the less of like kind) the faculty of the *Logos*. Given these things, and all psychologists would be agreed that the high powers of abstraction that are the only distinctive features of the human mind, might very probably have been developed by the mutual influence of language and thought.

In what respect, then, does the mind of a parrot differ from the mind of a man? The difference consists in the power of predication. An intelligent parrot is able to denominate an object or a quality; it is not able to predicate the quality as belonging to the object. In other words, the nominative stage of even spoken language does not extend to the power of making a proposition. At this stage of spoken language, words are nothing more than vocal gestures. A particular word, or a particular phrase, is learned by association, as the appropriate designation of a particular object, quality, action, or desire; but there is no power of spontaneously forming new sentences. At this stage in the evolution of language, whether in the parrot or in the child, words stand as signs that are stereotyped into special phrases, wherewith to signify particular things or states that the talker has previously associated with them; there is as yet no power of handling words as movable types wherewith to construct a proposition *de novo*. In order to pass from the nominative to the predicative stage of language or sign-making, two things are requisite. In the first place, the talker must have a general idea of beings in the abstract, else he could not supply the essential part of a proposition, the copula. In the next place, the talker must have a general idea of his own personality as distinct from that of all other beings, else he could not supply the essential meaning of a proposition, a judgment. When we make a proposition, we not only affirm a truth, but we affirm a truth perceived as true. We not only know that the grass is green (an animal knows this), but in predicating the greenness of the grass we prove that our knowledge is itself a matter of knowledge. We know that we know that the grass is green. This power of knowledge to know itself arises from the power that the human mind displays of introspection, or of turning inward upon itself, so as to make some of its states objective to others. And this power presupposes the faculty of self-consciousness, or the faculty of separating in thought the ego from the non-ego. Thus, in order to understand fully the probable genesis of predication, it is needful to consider the probable genesis of self-consciousness.

My proposition in this paper will be that, given the protoplasm of the sign-making faculty so far organized as to have reached the nominative stage of language, and given also the protoplasm of judgment so far organized as to have reached the stage of stating a truth (the mind not yet being sufficiently developed to be conscious of itself, and therefore not able to state to itself a truth as true), by the confluence of these two protoplasmic elements an act of fertilization is performed, such that the subsequent processes of mental organization proceed apace, and soon reach the stage of differentiation between subject and object. In all that is to follow I am in no way concerned with the philosophy of this change, but only with its history. On the side of its philosophy I am in complete agreement with the most advanced idealist, and hold that in the datum of self-consciousness we each of us possess, not alone our only ultimate knowledge, or that which alone is "real in its own right," but likewise the only mode of existence that the human mind is capable of conceiving as existence, and therefore the *conditio sine qua non* to the possibility of an external world. With this aspect of the matter, however, I am not here concerned. Just as the functions of an embryologist are confined to tracing the mere history of developmental changes, and just as he is thus as far as ever from throwing any light upon the deeper questions of the how and the why of life, so in seeking to indicate the steps whereby self-consciousness has arisen from the lower stage of physical development, I am as far as any one can be from throwing any light upon the intrinsic nature of that the probable genesis of which I am endeavoring to trace. It is as true to-day as it was in the days of Solomon, that "as thou knowest not how the bones do grow in the womb of her that is with child, thou knowest not what is the way of the spirit."

If it is only in man that self-consciousness is to be found, clearly it is only to man that we can look for any facts bearing upon the question of its evolution. And inasmuch as it is only during the first years of infancy that a human being is destitute of self-consciousness, the statement just made implies that only in infant psychology need we seek for the facts of which we are in search.

It will, I suppose, be admitted that self-consciousness consists in paying the same kind of attention to inward psychical processes that is habitually paid to outward physical processes. It will be further admitted that in the mind of animals and in the mind of infants there is a world of images standing as signs of outward objects;* and that the only reason why these images are not attended to unless called up by the sensuous association of corresponding objects, is because the mind is not yet able to leave the ground of such association, so as to move through the higher and more tenuous medium of introspective thought. Nevertheless, the images, in the case of the higher animals, are not restricted to the mere reproduction in memory of particular objects of sensuous perception; they admit of undergoing that amount of mental elaboration which entitles them to be termed simple concepts. Further, it is of still more importance to observe that of these ideal constructions a large constituent number have reference, not to objects of sense or to general qualities of such objects, but to the mental states of other animals. That is to say, the logic of feeling, even in animals, is enough to enable the mind to establish true analogies between its own states (although these are not yet the objects of separate attention, or of class as distinguished from implied knowledge) and the corresponding states of other minds. I need not dwell upon this point, because I take it to be a matter of simple observation that animals habitually and accurately interpret the mental states of other animals, while they also well know that other animals are able similarly to interpret their mental states, as is best proved by their practicing the arts of cunning, concealment, hypocrisy, etc. From these considerations we reach the general conclusion that intelligent animals recognize a world of ejects as well as a world of objects. Mental existence is already known to them ejectively, although, as may be conceded, never thought upon subjectively.*

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* See the chapter on "Imagination," in "Mental Evolution in Animals."

It is important further to observe that at this stage of mental evolution the individual, whether an animal or an infant, so far realizes its own personality as to be informed by the logic of feelings that it is one of a kind. I do not mean that at this stage the individual realizes its own or any other personality as a personality, but merely that it recognizes the fact of its being one among a number of similar though distinct forms of life. Alike in conflict, rivalry, sense of liability to punishment or vengeance, etc., the outward truth is continually being borne in upon the mind of an animal that it is a separate personality, and this though the animal may never be able, even in the most shadowy manner, to think about itself as a personality. In this way arises what Chauncey Wright has termed an "outward self-consciousness," which differs from true self-consciousness only in the absence of any attention being directed upon the inward mental states. This outward self-consciousness is known to us all, even in adult life, it being but comparatively seldom that we pause in our daily activities to contemplate the mental processes of which these activities are the expression.

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* The mental states of one individual cannot be known to another individual, either objectively or subjectively; they are known by a process of inferring their resemblance to one's own mental states. We eject our own mental states upon what is otherwise to us the blank screen of another mind.

We have seen, then, that self-consciousness consists in paying the same kind of attention to inward psychical processes that is habitually paid to outward physical processes; that in the mind of animals and infants there is a world of images standing as signs of outward objects; that at this stage of mental evolution we have not merely simple concepts, but also the recognition of an ejective no less than of an objective world; and that here also we have the recognition of personality, as far as this is dependent upon "outward self-consciousness," or the consciousness of self as a feeling and active agent, apart from self as an object of thought.

Such being the conditions precedent to the rise of self-consciousness, we may next turn to the growing child for evidence of all subsequent stages in the gradual evolution of this faculty. All observers are agreed that, for a considerable time after a child is able to use words as expressive of ideas, there is no vestige of true self-consciousness. Even its own organism at a year old is not known to the child as a part of the self, or, more correctly, as anything related to feelings. Professor Preyer observed that his boy, when more than a year old, bit his own arm just as though it had been a foreign object. Later, when the "outward self-consciousness," already explained, has begun to be developed, we find that the child, like the animal, has now learned to associate its own organism with its own mental states, in such wise that it recognizes its own body as belonging in a peculiar manner to the self, so far as this is recognized by the logic of feelings. Next the child begins to talk, and, as we might expect, the first translation of the logic of feelings into the logic of signs having reference to self, reveals the fact that as yet there is no true or inward self-consciousness, but only the outward. As yet, the child has paid no attention to his own mental states, further than to feel that he feels them; and, in the result, we find that the child speaks of himself as an object, *i. e.*, in the third person, or by his proper name. The change in the child's phraseology, from speaking of self as an object to speaking of self as a subject, does not usually take place till the third year. When it has taken place, we have definite evidence of true self-consciousness, though it is still in a rudimentary stage.

Let it now be observed that, long before any words are used indicative of even a dawning consciousness of self as self, the child has already advanced so far in its use of language as to frame implicit propositions. On this point I may adduce the impartial and highly competent testimony of Mr. Sully, who writes:

> "When a child of eighteen months, on seeing a dog, exclaims 'Bow wow,' or on tasting his food, exclaims 'Ot' (hot), or on letting fall his toy, says 'Dow' (down), he may be said to be implicitly framing a judgment: 'That is a dog,' 'This milk is hot,' 'My plaything is down.' . . . . The boy was first observed to frame a distinct judgment when nineteen months old, by saying 'Dit ki' (sister is crying)."

Hence we see that a child expresses implicit judgment before there is any evidence of his presenting the faintest rudiment of true self-consciousness. "Dit dow yu" is a proposition in every respect, more in the significant absence of the copula, which means that at this stage the mind is not able to state to itself as true a truth which it states to other minds. The child here perceives a certain fact, and expresses the perception in words in order to communicate information of the fact to other minds, just as an animal under similar circumstances will use a gesture or a vocal sign; but the child is no more able than the animal to think "is," or consciously to make to its own mind a statement that it makes to others.

Given this stage of mental evolution, and what follows? The child, like the animal, is supplied by its logic of feelings with a world of images standing as signs of outward objects, with an ejective knowledge of other minds, and with that kind of recognition of self as an active, suffering, and accountable agent which we have spoken of as outward self-consciousness. But over and above the animal, the child has at its command the more improved machinery of sign-making, which enables it to signify to other minds the fuller contents of its knowledge. Among these contents is the child's perception of the mental states of others as expressed by their gestures, tones, and words. These severally receive their distinguishing names, and so gain clearness and precision as ejective images of the corresponding states experienced by the child itself. "Mamma pleased to me" would have no meaning as spoken by a child, unless he knew from his own feelings what is the state of mind that he thus ejectively attributes to another individual. Therefore we cannot be surprised to find that at the same age a child will also say "Dodo pleased to mamma." Yet it is evident that we are here approaching the borders of true self-consciousness. "Dodo" is no doubt still speaking of himself in objective phraseology; but he has advanced so far in the interpretation of his own states of mind as clearly to name them, and so to fix these states before his mental vision as things that admit of being denoted by verbal signs.

Obviously the step from this to recognizing "Dodo" as not only the object but also the subject of mental changes, is not long. The mere fact of attaching verbal signs to inward mental states has the effect of focusing the attention upon those states; and when attention is thus habitually focused, we have supplied the only further condition required to enable the mind, through its memory of previous states, to compare its past with its present, and so to reach that idea of continuity among its own states in which the consciousness of self essentially consists.

GEORGE JOHN ROMANÉS.